

.c.Unit 5 Networking for the High-End;

.c.Purpose;

This unit describes HP networking solutions for high-end customers.

.c.Objectives;

At the end of this unit, you will be able to:

- 3 Describe the networking needs and concerns of high-end customers
- 3 Understand how HP can co-exist in an IBM environment
- 3 Describe several networking solutions offered by HP for the high-end user, both for today and tomorrow
- 3 Identify the strengths and weakness of the competition

.c.Introduction;

Networking provides the foundation for customers to access business-critical enterprise-wide information. It also allows customers to share computing resources to achieve a competitive advantage.

.c.Your Target Customer;

Target Customer Characteristics

Your target customers for HP networking solutions are primarily Fortune 1000 companies. These customers share the following characteristics:

- 3 Have offices in different geographic locations
 - 3 View communication between different offices as being mission critical
 - 3 Need timely information to make business-critical decisions.
 - 3 Have multi-vendor environments
 - 3 Desire to move towards de facto and industry standards rather than being locked into a single vendor
- A good example of a potential Corporate Business System customer would be a public service provider of telecommunications.

Networking Solution Components

Networking solutions for the high-end customer include:

- 3 A network that uses accepted de facto and industry network communications standards
- 3 The ability to connect a large number of end-users working with workstations, PCs, and terminals
- 3 The seamless integration of systems into existing environments to protect the customer's investment in computing
- 3 Distributed computing
- 3 An open network that will grow as the customer's needs grow for faster speed and more processing power
- 3 An ability to connect different E-mail systems
- 3 Access to enterprise-wide information

.c.What You Should Know About Networks;

When you discuss HP network solutions with a customer, you should be comfortable with networking terms and products. The following is a partial list of areas you should be able to discuss with a high-end customer.

- 3 Industry and de facto networking standards (OSI, TCP/IP, SNA)
- 3 Client/server and host/terminal computing
- 3 Graphical user interfaces
- 3 Integrating application software
- 3 Networking interfaces
- 3 Network security issues
- 3 Network management

If you need to review networking terms and concepts, please refer to the workbooks for the HP 9000 Series 800 (SR188) and HP 3000 (SR189).

In addition to the networking terms and concepts listed above, you should also be familiar with the following new terms and products:

- 3 IBM co-existence
- 3 FDDI (Fiber Distributed Data Interface)
- 3 SNMP (Simple Network Management Protocol)
- 3 Messaging backbone
- 3 DCE (Distributed Computing Environment)

.i.IBM: Co-Existence;

HP's IBM networking products provide the HP Corporate Business System seamless integration into IBM environments. HP's IBM communications offering provides the customer with the following capabilities:

- 3 Interactive communications
- 3 Batch communications
- 3 Program-to-program communication
- 3 Store-and-forward (E-mail) communications
- 3 Connectivity links

With the power of the new HP Corporate Business System combined with the robust HP-to-IBM communications product offering, HP is well positioned as the number one vendor to offload your customer's mainframe applications.

FDDI (Fiber Distributed Data Interface)

.G.NEWBURST.

PC

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CX

.i.FDDI; is an industry standard for high performance networks. FDDI runs at 100 megabits per second (Mbps) link speed, 10 times faster than the current local area network protocols. The FDDI standard evolved as the growth in distributed computing, processing power, and high throughput applications created the need for a faster processing speed in local area networks.

SNMP (Simple Network Management Protocol)

.G.NEWBURST.PCX;1.4";0.986";PCX

.i.SNMP; is a de facto standard for managing multi-vendor networks. The explosion of multi-vendor computing environments has given network managers the challenge of integrating and managing their networks effectively. SNMP provides the solution for these customers.

Messaging Backbone

.G.NEWBURST.PCX;1.4";0.986";PCX

Multiple E-mail systems usually exist in most Fortune 1000 corporations. Trying to connect these E-mail systems and keeping directories updated are key concerns of MIS managers. Linking distributed sites with up-to-date order data with EDI applications is also a concern.

HP's X.400 .i.Messaging Backbone; Network offers your customer a solution to these problems. For example, it

allows users of HP OpenMail to send and receive messages of CC:Mail users residing on a PC LAN.

DCE (Distributed Computing Environment)

.G.NEWBURST.PCX;1.4";0.986";PCX

.i.DCE; is a set of services including remote procedure calls, a security service, naming service, timing service, and a distributed file service, all of which enable the creation of transparent distributed applications in a multi-vendor environment.

.c.HP Networking Solutions ;

The next section describes HP network solutions in what we hope is an entertaining way, in the form of letters to an imaginary help columnist named LAN Anders. These letters offer troubled HP customers and stumped sales reps networking solutions that use HP product lines for business systems, network interfaces, and PC integration.

.G.NEWBURST.PCX;1.4";0.986";PCX

The following letters and replies mention some exciting new products and features recently announced by Hewlett-Packard. These products and features strengthen HP's high-end solution offering. Information on the following new products and features is in **bold text** in the replies.

- 3 Token Rings
- 3 FDDI
- 3 LU 6.2/PU 2.1 features
- 3 SNAPplus
- 3 X.500
- 3 Berkeley Sockets
- 3 Netware
- 3 NFS

For more information on HP's networking products, please refer to the data sheets in the HP Networking Communication Specification Guide, May 1992 (Hard copy: PN5091-3821E; CD ROM: PN5091-3820E).

.c.Ask LAN Anders. . .;

.c.. . . About Token Rings;

Dear LAN Anders,

My company in New York recently acquired a new startup in Dallas that has an installed token ring network. I want to purchase and connect an HP Corporate Business System without incurring the extra cost of rewiring my new building or purchasing extra routers or bridges. By the way, I foresee the information flow increasing rapidly at the Dallas site. To make things even more complex, this startup company in Dallas also needs to communicate with our HP system here at corporate headquarters in New York. CAN HP MEET MY CONNECTIVITY NEEDS?

Signed,
Ronald Trump

Dear Ronald,

.G.NEWBURST.PCX;1.4";0.986";PCX

You can put your mind at rest. As you know HP has a very strong 802.3/Ethernet offering. HP has recently announced and has available today a new native **token-ring interface**. This interface can connect directly to your existing token-ring network, alleviating the need to buy unnecessary equipment.

As for your performance requirements, HP's **.i.**Token Ring; offering supports both 4 Mbps (over-shielded and unshielded twisted pair) and 16 Mbps (over-shielded twisted pair) link speed, creating a smooth growth path.

And to meet your future speed requirements, HP supports **.i.** **FDDI**;, which will run up to 100 Mbps! To access your enterprise-wide information, HP's X.25 or extended LAN products (bridges and routers) could be just the ticket. The following figure shows what your network could look like.

.G.DALLAS.HPG;6.00";4.25";HPGL

Here is quick summary of HP's networking foundation offering for you to clip and put in your wallet.

	<u>HP 3000</u>	<u>HP 9000</u>
802.3 Ethernet*	Now	Now
802.5 .i.Token Ring;	Now	Now
.i.FDDI;	Mid '93	Now
X.25	Now	Now
NS Pt to Pt	Now	N/A
Frame Relay	UI	UI

Now = Available Now; UI = Under Investigation

* Second HP-Precision Bus (HP-PB) 802.3 LAN cards are available for HP 3000 S/900 and HP 9000 S/800 HP-PB systems.

.c. . . About IBM Communica-tions;

Dear LAN Anders,

I am a customer fed up with IBM bureaucrats. I have a mainframe application that I would like to offload onto a reputable vendor's system. I will require communica-tions to the IBM mainframe and to other IBM minicomputers so that I can protect my existing computing investment. WHO CAN HELP?

Signed,
Disgruntled IBM USER

Dear Disgruntled,

I've got just the vendor for you! Hewlett-Packard just announced their new high-end Corporate Business System, which is the perfect system for offloading mainframe applications. With its wide range of SNA and BSC communication products, Hewlett-Packard provides seamless integration into your IBM environment, therefore protecting your investment.

HP's solution includes interactive, batch, programmatic, and E-mail communications to IBM mainframes and mini computers.

	<u>HP 3000</u>	<u>HP 9000/S800</u>
Interactive	IMF, DHCF	3270

Batch	NRJE, RJE	3770
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Programmatic	.i.LU 6.2;	LU 6.2
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E-Mail	SNADs, X.400	X.400, X.500
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Connectivity	SNA/SDLC Link	G/W SNALink
	w/ NetView Alerts	SNALink
Native SNA/X.25	SNA/	
BSC Link	X.25 (via	
NS over SNA	Model 45)	

BSC Link
(via Third
Party)

.G.NEWBURST.PCX;1.4";0.986";PCX

To add to their strong offering, HP is introducing the following new functionality.

3 .i.SNAplus;Link with NetView alerts

3 SNAplus3270, includes HLLAPI

3 SNAplusAPI, new LU 6.2 interface

3 LU 6.2, new .i.PU 2.1; peer-to-peer features

To convince you that HP is committed to helping you solve your mainframe downsizing problems, HP is currently investing in the following future solutions:

3 SNA over Token Ring

3 Native SNA over X.25

3 Netview API

3 LU0 API

3 Motif full-color support

As you can see, HP can provide you with outstanding IBM communications products to meet your needs!

.G.HP-308X.HPG;6.00";4.25";HPGL

.c. . . About Server to Server Environments;

Dear LAN Anders,

I'm an HP sales rep. I've got a potential new account that if I win, my commission could equal the California Lottery! The customer needs a high-end system that must access enterprise-wide information on all systems. The customer already has an installed base of DEC VAXs. Can the new HP Corporate Business System fit into this environment?

Signed,

One Answer Away

Dear One Answer,

Have I got an answer for you: STANDARDS! HP is the leader in providing industry standard networking. Industry standards, such as OSI and TCP/IP solve large multi-vendor communication problems such as yours. HP provides the following multi-vendor server-to-server products:

	<u>HP 3000</u>	<u>HP 9000/S800</u>	<u>US GOSIP Compliance</u>	
TCP/IP				
Telenet	Now		Now	
FTP	Now		Now	
NCS	Now		Now	
OSI				
FTAM	Now		Now	Y
OTS	Now		Now	Y
X.400	Now		Now	Y
		X.500	UI	Now
				Y

Now = Available Now; UI = Under Investigation; Y = Yes

.G.NEWBURST.PCX;1.4";0.986";PCX

An example of when customers can benefit from standards is when they are developing a messaging backbone to support distributed applications such as E-Mail, EDI, and FAX. HP's messaging backbone consists of the X.400 and **.i.X.500**; products, which are based on OSI standards. The X.400 products offer multi-vendor messaging for HP 9000 and HP 3000 Corporate Business Systems.

The HP 9000 Series 800 also offers X.500, which offers directory services (similar to how a telephone book is used with your telephone). HP has the most robust messaging backbone offering in the industry.

.G.NEWBURST.PCX;1.4";0.986";PCX

In addition, the HP 3000 has made significant enhancements to the TCP/IP network transport with the MPE/iX, release 4.0. These additions include support for **.i.Berkeley Sockets; 4.3** and **Domain Names**. By supporting these features, the HP 3000 Corporate Business System now offers the standard networking features available on most systems running UNIX, further strengthening the interoperability of HP systems in multi-vendor environments. The enhancements also **increase the number of TCP connections**, which allows the Corporate Business System to be used as servers for a significantly larger number of clients. Finally, **performance improvements** match the increasing power and performance of the HP 3000 Corporate Business Systems.

.c.. . . About End-User Access;

Dear LAN Anders,

I've known for a long time all about HP's terminal connect strategy with DTCs and MUXs. But now my company also has two other types of users, PC users and workstation users. The accounting department, which uses PCs, needs to interact with an accounting application on our high-end business system server, as well as share peripherals and files. The engineering work group has workstations on their desktops. They need to access and share files on the high-end server. I have not yet made a decision as to what type of network operating system to purchase. What can HP offer to meet my needs?

Signed,
Stumped Power User

Dear Stumped,
HP offers a wide variety of PC integration products to give your PC users the flexibility of choice, and the ability to use one of HP's powerful high-end Corporate Business Systems as a server. HP offers the following PC integration products.

<u>HP 3000</u>	<u>HP</u>		
<u>9000/800</u>			
.i.Netware;	Now	Now	
LAN Manager	Now	Now	
Appletalk 1H 93	Now	via	
third party			
(PACER)			

Now = Available Now

For your workstation users, HP offers **NFS**, which is a de facto standard for distributed file access and is widely implemented among UNIX workstations. By offering NFS, HP provides your workstation users with transparent access to files located on the HP Corporate Business Systems. NFS is supported today on both the HP 3000 S/900 and HP 9000 S/800.

And to meet your end-users' future needs for trans-parent access to distributed applications in a multi-vendor computing environment, HP is committed to supporting the full suite of Open Software Foundation's DCE services.

.c. . . About Network Management in a Multi-vendor Environment;

Dear LAN Anders,

Help! My company recently implemented a just-in-time manufacturing operation which relies upon multi-vendor computing systems for enterprise-wide business-critical information. Needless to say, it's crucial that the computing network is continuously working. Any down-time will have a significant impact on our ability to meet our shipping deadlines. Trying to manage all these different computing systems has been a nightmare and has meant many long hours for my staff. To make matters worse, my relentless (!?* \$) boss is on my back to reduce the cost of my support staff. Can you help this tired network manager?

Signed,

Swamped Network Manager

Dear Swamped,

Hewlett-Packard's adherence to network management standards provides a person like you with the ability to manage HP systems in a heterogeneous environment. That means that you can concentrate your network management expertise in one location, which translates into reduced operating costs. Today and in the future, HP will continue to support the de facto and industry standards for multi-vendor network management: .i.SNMP; and CMIS/CMIP.

HP systems incorporate the SMNP agent capability, which provides network layered information (configuration, performance, fault isolation, etc.) to a SNMP management station, such as HP's industry-leading OpenView Network Management station.

What you need to do is select a computer vendor like HP that supports industry standard network management solutions. Here is an example of a just-in-time manufacturing site using HP's OpenView Network Management Station to manage a multi-vendor network.

.G.JITIME.HPG;6.00";4.25";HPGL

.c.Competition;

HP, IBM, and DEC all state that they provide open networking. But only HP delivers today on that promise. And HP delivers that promise across all system platforms. By favoring an open system based on accepted standards, HP can offer its customers more connectivity and the ability to work with a wide range of multi-vendor systems.

.c.IBM's Networking;

.i.IBM:competing against;IBM offers system connectivity through:

3 Primarily, SNA networking (a proprietary de facto standard) and

3 Secondarily, minimum compliance with standard protocols, such as TCP/IP and OSI

IBM Strength:

3 A huge installed base of SNA

IBM Weaknesses:

3 Lack of multi-vendor support for AS/400 platform

3 PC-Host integration on AS/400 and MVS (for example, Novell NetWare)

3 Favor proprietary SNA solutions over open standards

.c.DEC's Networking;

.i.DEC: competing against; Digital offers system connectivity through:

3 DECnet Phase V (1987 to 1991; it never succeeded)

3 Advantage Networks (a new strategy that supports DECnet Phase IV, TCP/IP, and OSI)

DEC Strengths:

3 DECnet Phase IV has a large installed base and is well respected.

3 SNA connectivity has a broad range of functionality.

3 Perceived as a networking leader

DEC Weaknesses:

3 Inability to deliver on promises (for example, DECnet Phase V, including OSI)

3 PC-host integration (for example, weak .i.Netware; offering)

3 Late in embracing TCP/IP (third-party products)

3 Favors DECnet product line over standards-based networking

.c.HP's Vision for the Future;

HP is continuously striving to provide our commercial customers with a more effective means of efficiently accessing and distributing information across their enterprise-wide multi-vendor network.

HP's commitment in adhering to de facto and industry standards has built a foundation for meeting our customers' networking challenges. HP is a leader in supporting the growth of standards technologies, such as X.400, .i.X.500;, and OSF/.i.DCE;.

With HP's offering of high-end systems and the increasing use of high-bandwidth applications (image-based and multimedia), customers are faced with the challenge of trying to meet their growing bandwidth needs. HP will continue to meet your customers' future requirements by supplying standards-based, high-bandwidth connectivity products, such as .i.FDDI; and .i.Frame Relay;.

HP delivers more industry-standard networking today to deliver growth tomorrow.

.c.Summary;

Networking provides the foundation for customers to access business-critical enterprise-wide information. It also allows customers to share computing resources to achieve a competitive advantage.

Your target customers for HP networking solutions are primarily Fortune 1000 companies. This customer's success is dependent upon communication between offices that are often in different parts of the world.

When you discuss HP network solutions with a customer, you should be comfortable with basic networking concepts. You should also be familiar with HP networking solutions that are available now or will be available in the near future. You can feel confident that HP's wide range of standards-based networking products offer HP a real competitive edge over the competition, who still tend to offer non-standard, proprietary network systems.

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